

Remarks

Claims 1-18 are now pending in the present application. Claims 1, 2, 9, 10, 15, 16 and 17 have been amended.

The objection to Claim 15 due to an informality is respectfully traversed. Claim 15 has been amended as suggested in the Office Action. Applicants therefore request that the objection to Claim 15 be withdrawn.

The rejection of Claims 1, 5, 8, 9, 13, 15, and 16 under 35 U.S.C. § 102(e) as being anticipated by Kurimoto (U.S. Patent No. 6,439,915) is respectfully traversed.

Kurimoto describes an electrical connector having a detector fitting function. A housing groove (25) of a female housing (20) is provided with a locking arm (26) that couples to another housing (20). A detecting member (35) is attached to the housing (20) and the housings (20) and (25) are fitted together. In a main attaching position wherein housings (20), (25) are fully joined, extending ends of the locking arm (26) fit into a hole (37) of a frame-shaped base member (36) of the detecting member (35) to prevent the arm (26) from being moved upward or downward. See at least Kurimoto col. 6, line 54 to col. 7, line 3 and Figure 18. Notably, and unlike the claimed invention, Kurimoto's detecting member (35) does not underlie the locking arm (26) to prevent actuation of the locking arm (26). Instead, Kurimoto's detecting member (35) receives the locking arm (26) in a hole in the frame and as illustrated in Figure 18 renders the locking arm (26) inaccessible for actuation.

In contrast, and as described at least in paragraph [48] of the instant specification, a bottom surface 96 of a latch beam 90 of a connector 24 is located directly above a portion of a pad top surface 150 of a CPA 26. Thus, if a downward force is applied to a finger rest 112 extending from the latch beam 90, the bottom surface 96 of the beam will contact the pad top surface 120 before the latch assembly has reached an unlatched position wherein the housings 22, 24 may be separated.

Claim 1 recites a connector assembly including a connector position assurance device (CPA) having a retention assembly locking element and a CPA retention element. The CPA is slidably mounted to a CPA mounting assembly of a connector housing and is movable between first and second positions. The CPA retention assembly locking element underlies the locking contact surface to prevent the retention assembly from moving to the unlocked position when the CPA is in the second position, whereby the CPA prevents engagement and disengagement of the first and second connector housings when in the second position.

It is respectfully submitted that Kurimoto neither describes nor suggests the connector assembly recited in Claim 1. It is evident from Figure 18 of Kurimoto that the detecting member (35) overlies the locking arm (26) by blocking access to the locking arm (26). Nothing in the detector member itself prevents the locking arm (26) from moving to an unlatched position. Claim 1 is therefore submitted to be patentable over Kurimoto.

Claim 9 recites that a portion of the latch assembly is exposed through a top surface of the plug housing in each of the mated and unmated positions of the CPA. As noted above, the locking arm (26) described by Kurimoto is received in a hole (37) in the frame (35) of the detecting member as illustrated in Figure 18, thereby rendering the locking arm inaccessible and unexposed for actuation. Claim 9 is therefore submitted to be patentable over Kurimoto.

Claim 16 recites a CPA mounting assembly mounted to a connector housing. The CPA is slidably mounted to the CPA mounting assembly and movable between first and second positions wherein a portion of a latch assembly is exposed. The CPA permits biasing of the retention assembly when in the first position, and the retention assembly locking element underlies the locking contact surface to prevent the retention assembly from moving to the unlocked position when the CPA is in the second position. The CPA retention element cooperates with the CPA retention feature to maintain the CPA in the second position. The detection member described by Kurimoto overlies the connector locking arm and encloses the

locking arm so that is in accessible and not exposed. Claim 16 is therefore submitted to be patentable over Kurimoto.

For the reasons set forth above, Applicants respectfully request that the Section 102 rejection of Claims 1, 5, 8, 9, 13, 15, and 16 be withdrawn.

The rejection of Claims 1, 3, 4, 6, 7, 9, 11, 12, 14, 16 and 18 under 35 U.S.C. § 102(e) as being anticipated by Ceru (U.S. Patent No. 6,261,116) is respectfully traversed.

Ceru describes a connector position assurance element (12) and lock arm structure (84) for mating connector housings (52), (70). The CPA element (12) includes a base portion (14) and a handle (20) extending from base portion (14). A curved arm or prong (30) extends forwardly from the base portion and includes a prawl (34) at a free end thereof that is received in an aperture in the lock arm (84) of one of the housings. Outer guide arms (38) extend forwardly from the base portion (12) parallel to and on each side of prong (30). The guide arms (38) slide under internal rails (90) of housing (70) along the inner surfaces of lock arm guides (82) to ensure that the CPA (12) is properly positioned.

Claim 1 recites a connector assembly including a connector position assurance device (CPA) including a first CPA beam including a retention assembly locking element and a second beam including a CPA retention element. Ceru neither describes nor suggest a connector assembly as recited in Claim 1. It is clear from the Figures and description of Ceru that the CPA guide arms serve no function to retain or lock the CPA to the lock arm structure of housing (70). Rather, prawl (34) of prong (30) serves to retain the CPA to the connector housing (70). It is further evident that locking of the CPA to prevent separation of the connector housings is provided with a seat (28) in the CPA base portion (12) and not by either of the prong (30) or guide arms (28). Claim 1 is therefore submitted to be patentable over Ceru.

Likewise, Claim 9 recites that the CPA includes a retaining CPA beam and at least one locking CPA beam. Ceru describes a CPA including a retaining prawl (34) on center prong (30)

but no locking feature, and outer guides (38) that serve no retaining or locking function. Claim 9 is therefore submitted to be patentable over Ceru.

Claim 16 recites a connector position assurance device including a first CPA beam and a second CPA beam wherein the first beam includes a retention assembly locking element and the second beam includes a CPA retention element. For the reasons set forth above, it is respectfully submitted that Claim 16 is patentable over Ceru.

For the reasons set forth above, Applicants respectfully request that the Section 102 rejection of Claims 1, 3, 4, 6, 7, 9, 11, 12, 14, 16 and 18 be withdrawn.

The rejection of Claims 2, 10 and 17 under 35 U.S.C. § 103 as being unpatentable over Kurimoto is respectfully traversed.

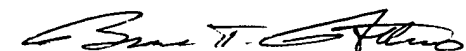
The assertion in the Office Action that "it would have been obvious to one having ordinary skill in the art at the time the invention was made to locate the stoppers on the latch arms, since it has been held that rearranging parts of in invention involves only routine skill in the art" is respectfully traversed. It is submitted that a prima facie case of obviousness has not been established. The Office Action provides no explanation or motivation, other than the conclusory statement set forth above, why a person of ordinary skill in the art would have been motivated to rearrange the parts of the asserted invention. The assembly described by Kurimoto would appear to capably serve its intended purpose, and it is not clear why one would rearrange or modify the parts describe therein wherein a fully functional device is already provided. There is no suggestion from the Kurimoto reference that rearrangement of the elements described by Kurimoto would be advantageous or advisable.

It is well settled that a motivation to combine or modify teachings of the prior art must come from the cited references themselves, and it is impermissible to hindsight reconstruction of an invention, using Applicant's own teaching as a template, to piece together isolated aspects of the prior art in an effort to deprecate the claimed invention. It is respectfully submitted that the

present rejection is not supported by a clear motivation from the cited reference, and it is therefore submitted that the rejection of Claims 2, 7 and 10 is improper and should be withdrawn.

In view of the foregoing amendments and remarks, all the claims now active in this application are believed to be in condition for allowance. Reconsideration and favorable action is respectfully solicited.

Respectfully Submitted,



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APPENDIX

Version with Markings to Show Changes Made

IN THE CLAIMS

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1. (once amended) An electrical connector assembly comprising:

a connector position assurance device (CPA) including a first beam including a retention assembly locking element, and a second beam including a CPA retention element, (144 a) (145) (146)

first and second connector housings, one of said first and second connector housings having a body section with a mating interface on one end thereof and the other of said first and second connector housings having an opening to receive said mating interface;

a retention assembly mounted to said first connector housing for securing said first and second connector housings when said housings are fully mated; said retention assembly including a first housing retention feature, a CPA retention feature, and a locking contact surface, said retention assembly being movable between locked and unlocked positions;

a second housing retention feature mounted to said second connector housing, said second housing retention feature cooperating with said first housing retention feature to secure said first and second connector housings when said housings are fully mated; and

a CPA mounting assembly mounted to said first connector housing, said CPA being slidably mounted to said CPA mounting assembly and movable between first and second positions, said CPA permitting biasing of said retention assembly and engagement and disengagement of said first and second connector housings when in said first position, said retention assembly locking element [cooperating with] underlying said locking contact surface to prevent said retention assembly from moving to said unlocked position when said CPA is in said second position, whereby said CPA prevents engagement and disengagement of said first and

second connector housings when in said second position, said CPA retention element cooperating with said CPA retention feature to maintain said CPA in said second position.

2. (once amended) The electrical connector assembly of claim 1 wherein [said CPA includes a first CPA beam and at least one second CPA beam, and] said retention assembly includes arms and a cross-member joining said arms, [said first CPA beam including said CPA retention element, said at least one second CPA beam including said retention assembly locking element,] said arms including said locking contact surface⁽¹²⁶⁾, and said cross-member including said CPA retention feature. (124)

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9. (once amended) An electrical connector assembly comprising:

a connector position assurance device (CPA) including a said CPA includes a retaining CPA beam and at least one locking CPA beam, a latch locking element and a CPA retention element;

a plug housing having a body section with a mating interface on one end thereof;

a header housing having an opening to receive said mating interface;

a latch assembly mounted to said plug housing for maintaining contact between said plug and header housings when mated, said latch assembly including a retention feature, a CPA retention feature, and a locking contact surface, said latch assembly being movable between latched and unlatched positions;

a latch retention assembly mounted to said header housing and including a latch retention surface, said latch retention surface cooperating with said retention feature to maintain contact between said plug and header housings when said housings are mated; and

a CPA mounting assembly mounted to said plug housing, said CPA being slidably mounted to said CPA mounting assembly and movable to unmated and mated positions, a

portion of said latch assembly exposed through a top surface of said plug housing in each of the mated and unmated positions, said CPA permitting movement of said latch assembly to said unlatched position and thereby permitting engagement and disengagement of said plug and header housings when in said unmated position, said latch locking element cooperating with said locking contact surface to prevent said latch assembly from moving to said unlatched position when said CPA is in said mated position, whereby said CPA prevents engagement and disengagement of said plug and header housings when in said mated position, said CPA retention element cooperating with said CPA retention feature to maintain said CPA in said mated position.

10. (once amended) The electrical connector assembly of claim 9 wherein [said CPA includes a retaining CPA beam and at least one locking CPA beam, and] said latch assembly includes latch arms and a cross-member, said latch arms extending from a latch base and joined by said cross-member proximal to their free ends, said CPA retention element extending from said retaining CPA beam, said latch locking element extending from said at least one locking CPA beam, said latch arms including said locking contact surface, and said cross-member including said CPA retention feature.

15. (once amended) The electrical connector assembly of claim 9 wherein said CPA includes a CPA finger rest and said latch assembly includes a latch assembly finger rest, said CPA finger rest at least partially surrounding said latch assembly finger rest when said CPA is in said [second] mated position.

16. (once amended) An electrical connector half assembly comprising:

a connector position assurance device (CPA) including a first CPA beam and a second CPA beam, said first beam including retention assembly locking element and said second beam including a CPA retention element;

a connector housing adapted for mating with a mating connector housing;

a retention assembly mounted to said connector housing for securing said connector housing to a mating connector housing when fully mated, said retention assembly including a housing retention feature, a CPA retention feature, and a locking contact surface, said retention assembly being movable between locked and unlocked positions; and

a CPA mounting assembly mounted to said connector housing, said CPA being slidably mounted to said CPA mounting assembly and movable between first and second positions wherein a portion of said latch assembly is exposed, said CPA permitting biasing of said retention assembly when in said first position, said retention assembly locking element [cooperating with] underlying said locking contact surface to prevent said retention assembly from moving to said unlocked position when said CPA is in said second position, said CPA retention element cooperating with said CPA retention feature to maintain said CPA in said second position.

17. (once amended) The electrical connector half assembly of claim 16 wherein said [CPA includes a first CPA beam and at least one second CPA beam, and said] retention assembly includes arms and a cross-member joining said arms, [said first CPA beam including said CPA retention element, said at least one second CPA beam including said retention assembly locking element,] said arms including said locking contact surface, and said cross-member including said CPA retention feature.